

CONDITIONALLY APPROVED

REVIEW BY:

SAFEbuilt.

APPROVED THIRD PARTY PLAN REVIEW AGENCY
BY THE CITY OF PORTLAND, MAINE.

SEE REVIEW LETTER FOR MORE INFORMATION.

01/16/2019



Reviewed for Code Compliance
Permitting and Inspections Department
Approved with Conditions

02/21/2019

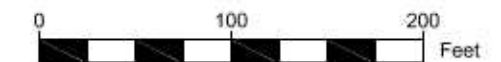
LEGEND:



APPROXIMATE BORING LOCATION

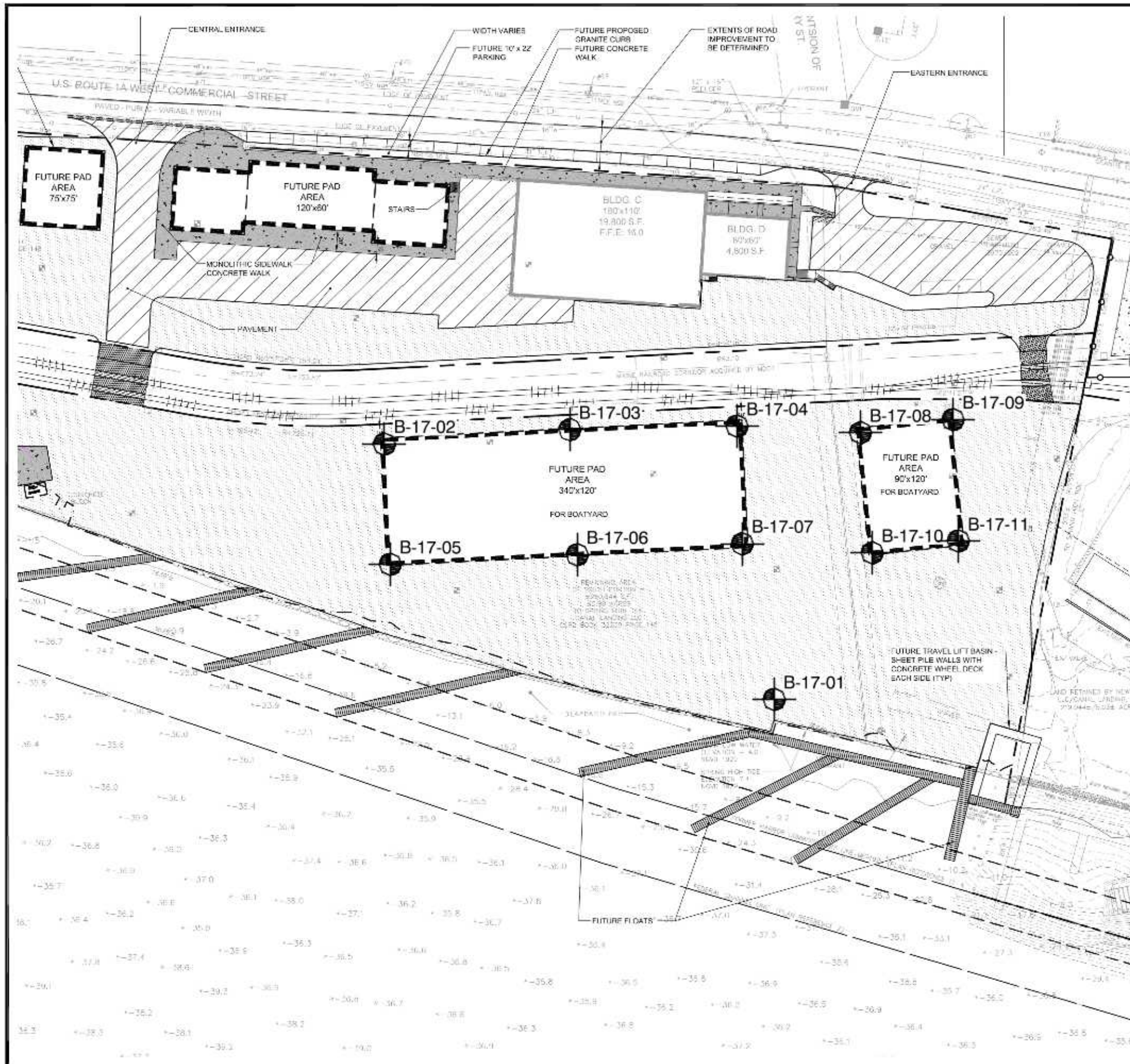
NOTES:

1. EXPLORATION LOCATION PLAN WAS PREPARED FROM A 1"=50' SCALE PLAN OF THE SITE ENTITLED "FUTURE PHASE CONCEPT PLAN," PREPARED BY FAY, SPOFFARD & THORNDIKE, DATED APRIL 2015, REVISED 11/10/2015.
2. THE BORINGS WERE LOCATED IN THE FIELD BY MEASUREMENTS FROM EXISTING SITE FEATURES.
3. THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE ASSOCIATED S. W. COLE ENGINEERING, INC. GEOTECHNICAL REPORT.
4. THE PURPOSE OF THIS PLAN IS ONLY TO DEPICT THE LOCATION OF THE EXPLORATIONS IN RELATION TO THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION AND IS NOT TO BE USED FOR CONSTRUCTION.



CANAL LANDING, LLC
EXPLORATION LOCATION PLAN
 PROPOSED PORTLAND YACHT SERVICES EXPANSION
 WEST COMMERCIAL STREET
 PORTLAND, MAINE

Job No.: 13-0912.4 Scale: 1" = 100'
 Date: 09/21/2017 Sheet: 1



R:\2013\13-0912.4\CAD\Drawings\13-0912.4 EP.dwg, 9/21/2017 2:58:37 PM, I:1, CEM, S.W. Cole Engineering, Inc.



BORING LOG

BORING NO.: B-17-01
SHEET: 1 of 2
PROJECT NO.: 13-0912.4
DATE START: 9/11/2017
DATE FINISH: 9/11/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 9' +/- **TOTAL DEPTH (FT):** 84.0 **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Jeff Lee **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 **AUGER ID/OD:** N/A / N/A **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** 4 in / 4 1/2 in **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ∇ 10 ft Soils Moist to Wet Below 5', Saturated Below 10' +/-

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level
 ∇ At time of Drilling
 ∇ At Completion of Drilling
 ∇ After Drilling
D = Split Spoon Sample Pen. = Penetration Length
U = Thin Walled Tube Sample Rec. = Recovery Length
R = Rock Core Sample bpf = Blows per Foot
V = Field Vane Shear mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer S_v = Field Vane Shear Strength, kips/sq.ft.
RQD = Rock Quality Designation q_u = Unconfined Compressive Strength, kips/sq.ft.
PID = Photoionization Detector N/A = Not Applicable

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks | | | |
|------------|------------|-------------------|--------------------|------|--------------------|-----------------|-------------|-------------------------------------|------------------------|---------|-------------------|-----------------------|--|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | | | | | Blow Count or RQD | Field / Lab Test Data | |
| | | | 1D | | 0-2 | 24/16 | 4-4-5-6 | | | | | | |
| | | | | | | | | 2.0 | | | | | |
| | | | 2D | | 5-7 | 24/16 | 1-1-2-1 | | | | | | |
| | | | | | | | | | | | | | |
| | | | 3D | | 10-12 | 24/20 | 1/12"-1/12" | | | | | | |
| | | | | | | | | | | | | | |
| | | | 4D | | 15-17 | 24/8 | 9-12-10-6 | | | | | | |
| | | | | | | | | | | | | | |
| | | | 5D | | 20-22 | 24/20 | 1/12"-2-1 | | | | | | |
| | | | | | | | | | | | | | |
| | | | 6D | | 25-27 | 24/24 | WOH/24* | q _p =0.5 to 1 ksf | | | | | |
| | | | | | | | | | | | | | |
| | | | 7D | | 30-32 | 24/14 | 2-3-4-5 | q _p =1.5 to 2.5 ksf | | | | | |
| | | | | | | | | | | | | | |
| | | | 1V 8D | | 35-35 35.1-37.1 | 0 24/5 | 2-4-3-3 | | | | | | |



Reviewed for Code Compliance
 Permitting and Inspections Department
 Approved with Conditions

02/21/2019

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: B-17-01



BORING LOG

CLIENT: Canal Landing, LLC
 PROJECT: Proposed Portland Yacht Services Expansion
 LOCATION: West Commercial Street, Portland, Maine

BORING NO.: **B-17-01**
 SHEET: 2 of 2
 PROJECT NO. 13-0912.4
 DATE START: 9/11/2017
 DATE FINISH: 9/11/2017

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|-----------------|-------------------|-------------|-------------------------------------|--|---------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | | | | |
| | | | 9D | X | 40-42 | 24/18 | 11-11-9-12 | | 40.0 | Medium dense, brown, fine SAND, trace silt, with occasional silt seams | |
| -35 | 45 | | 10D | X | 45-47 | 24/18 | 10-13-13-21 | | 46.5 | Medium dense to loose, gray-brown to gray, gravelly silty SAND | |
| -40 | 50 | | 11D | X | 50-52 | 24/24 | 3-3-2-4 | | | | |
| -45 | 55 | | 12D | X | 55-57 | 24/24 | 1-2-5-5 | | | | |
| -50 | 60 | | 13D | X | 60-62 | 24/16 | 5-6-6-6 | | 60.0 | Medium dense, gray to brown, medium to coarse SAND and GRAVEL, some silt | |
| -55 | 65 | | 14D | X | 65-67 | 24/10 | 13-15-13-20 | | 65.0 | Medium dense, orange-brown, medium SAND, trace silt | |
| -60 | 70 | | 15D | X | 70-71.3 | 16/6 | 20-35-50/4" | | 66.0 | Dense, brown, SAND and GRAVEL, trace silt | |
| -65 | 75 | | 16D | X | 75-77 | 24/14 | 22-24-27-30 | | 70.0 | Dense to very dense, brown and gray, silty SAND and GRAVEL with frequent cobbles | |
| -70 | 80 | | 17D | X | 82-83.3 | 16/14 | 31-42-50/4" | | 75.0 | Dense, orange-brown, silty sandy GRAVEL with frequent cobbles | |
| | | | | | | | | | 79.0 | Boulder - penetrate with roller cone | |
| | | | | | | | | | 80.0 | Very dense, gray-brown, silty SAND and GRAVEL with weathered bedrock fragments | |
| | | | | | | | | | 84.0 | Bottom of Exploration at 84.0 feet | |



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BORING / WELL 13-0912.4.GPJ SWICE TEMPLATE.GDT 9/21/17

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BORING NO.: **B-17-01**



BORING LOG

BORING NO.: B-17-02
SHEET: 1 of 2
PROJECT NO.: 13-0912.4
DATE START: 9/12/2017
DATE FINISH: 9/12/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** +/- **TOTAL DEPTH (FT):** 42.0 **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Jeff Lee **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 **AUGER ID/OD:** N/A / N/A **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** 4 in / 4 1/2 in **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ∇ 10 ft Soils Saturated Below 10' +/-

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level
 ∇ At time of Drilling
 ∇ At Completion of Drilling
 ∇ After Drilling
D = Split Spoon Sample Pen. = Penetration Length
U = Thin Walled Tube Sample Rec. = Recovery Length
R = Rock Core Sample bpf = Blows per Foot
V = Field Vane Shear mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|-----------------|-------------------|-------------------------|--|------------------------|---------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | | | | |
| | | | 1D | X | 0-2 | 24/18 | 3-4-6-5 | | Loose, Black, ASH and slag with brick fragments (Fill) | | |
| | | | 2D | X | 2-4 | 24/16 | 5-9-9-8 | 1.8 | Medium dense, brown, gravelly SAND, some silt (Fill) | | |
| | 5 | | 3D | X | 5-7 | 24/14 | 3-4-5-5 | | | | |
| | 10 | | 4D | X | 10-12 | 24/0 | 9-8-9-6 | 10.0 | Medium dense to loose, gray silty SAND with shells and organic odor | ∇ | |
| | 15 | | 5D | X | 15-17 | 24/12 | 3-1-1-1 | | | | |
| | 20 | | 6D | X | 20-22 | 24/20 | 10-11-10-9 | 20.0 | Stiff, brown to gray-brown, layered silty CLAY and SAND, trace silt | | |
| | 25 | | 7D | X | 25-27 | 24/16 | 2-2-2-4 | 25.0 | Stiff to medium, gray with black streaking, silty CLAY with frequent sand seams and layers | | |
| | 30 | | 8D | X | 30-32 | 24/16 | 1-2-2-2 | | | | |
| | 35 | | 9D | X | 35-37 | 24/22 | 2-3-4-3 | q _p =0.5 ksf | | | |
| | | | | | | | | 38.0 | Medium dense to dense, brown, silty fine SAND, with occasional clayey silt seams | | |



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BORING / WELL 13-0912.4.GPJ SWICE TEMPLATE.GDT 9/21/17

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(Continued Next Page)

BORING NO.: B-17-02



BORING LOG

BORING NO.: B-17-02
SHEET: 2 of 2
PROJECT NO.: 13-0912.4
DATE START: 9/12/2017
DATE FINISH: 9/12/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|-----------------|-------------------|-------------|-------------------------------------|------------------------|---------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | | | | |
| | | | 10D | X | 40-42 | 24/16 | 6-8-17-20 | | | | |

42.0 Bottom of Exploration at 42.0 feet



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BORING / WELL: 13-0912.4.GPJ SWCE TEMPLATE.GDT 9/21/17

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BORING NO.: B-17-02



BORING LOG

BORING NO.: B-17-03
SHEET: 1 of 1
PROJECT NO.: 13-0912.4
DATE START: 9/13/2017
DATE FINISH: 9/13/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** +/- **TOTAL DEPTH (FT):** 37.0 **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Jeff Lee **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 **AUGER ID/OD:** N/A / N/A **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** 4 in / 4 1/2 in **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ∇ 10 ft Soils Saturated Below 10' +/-
GENERAL NOTES: On Berm

KEY TO NOTES AND SYMBOLS:
Water Level
 ∇ At time of Drilling
 ∇ At Completion of Drilling
 ∇ After Drilling
D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear
Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|-----------------|-------------------|-------------|--|------------------------------------|---------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | | | | |
| | | | 1D | X | 0-2 | 24/5 | 1-2-2-2 | | Loose, black, silty SAND, some gravel, with ASH and organics (Fill) | | |
| | 5 | | 2D | X | 5-7 | 24/22 | 2-3-4-4 | | 5.8 Loose, gray-brown and brown, silty fine SAND | | |
| | 10 | | 3D | X | 10-12 | 24/20 | WOH-1-6-8 | | 10.0 ∇ Loose to medium dense, brown, layered fine SAND and SILT, SAND some silt, and gravelly SAND, some silt | | |
| | 15 | | 4D | X | 15-17 | 24/18 | 12-12-13-12 | | | | |
| | 20 | | 5D | X | 20-22 | 24/16 | 5-6-7-7 | | 20.0 Medium dense, brown, fine to medium SAND, trace silt | | |
| | 25 | | 6D | X | 25-27 | 24/16 | 4-7-6-8 | | 25.0 Medium dense, brown, SAND, some silt, with clayey silt layers | | |
| | 30 | | 7D | X | 30-32 | 24/22 | 9-9-9-11 | | 30.0 Medium dense, brown, SAND, trace silt | | |
| | 35 | | 8D | X | 35-37 | 24/20 | 12-11-11-14 | | | | |
| | | | | | | | | | 37.0 | Bottom of Exploration at 37.0 feet | |



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BORING / WELL 13-0912.4.GPJ SWICE TEMPLATE.GDT 9/21/17

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BORING NO.: B-17-03



BORING LOG

BORING NO.: B-17-04
SHEET: 1 of 2
PROJECT NO.: 13-0912.4
DATE START: 9/13/2017
DATE FINISH: 9/13/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** +/- **TOTAL DEPTH (FT):** 42.0 **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Jeff Lee **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 **AUGER ID/OD:** N/A / N/A **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** 4 in / 4 1/2 in **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ∇ 15 ft Soils Saturated Below 15' +/-
GENERAL NOTES: On Berm

KEY TO NOTES AND SYMBOLS:
 Water Level ∇ At time of Drilling
 At Completion of Drilling
 After Drilling
 D = Split Spoon Sample
 U = Thin Walled Tube Sample
 R = Rock Core Sample
 V = Field Vane Shear
 Pen. = Penetration Length
 Rec. = Recovery Length
 bpf = Blows per Foot
 mpf = Minute per Foot
 WOR = Weight of Rods
 WOH = Weight of Hammer
 RQD = Rock Quality Designation
 PID = Photoionization Detector
 S_v = Field Vane Shear Strength, kips/sq.ft.
 q_u = Unconfined Compressive Strength, kips/sq.ft.
 N/A = Not Applicable

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|--------------------|-----------------|-------------------|-------------|--|------------------------|---------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | | | | |
| | | | 1D | X | 0-2 | 24/8 | 2-5-6-4 | | Loose to medium dense, black, ASH with silty sand and brick (Fill) | | |
| | | | 2D | X | 2-4 | 24/0 | 3-3-3-4 | | | | |
| | 5 | | 3D | X | 5-7 | 24/14 | 2-4-8-7 | | | | |
| | | | 4D | X | 7-9 | 24/14 | 8-8-6-14 | | | | |
| | 10 | | 5D | X | 10-12 | 24/18 | 6-3-3-3 | | 10.5 Loose, brown, SAND, some silt, with occasional silty clay seams | | |
| | 15 | | 6D | X | 15-17 | 24/16 | 8-11-11-8 | | 15.0 Medium dense, brown to gray, silty SAND, some gravel ∇ | | |
| | 20 | | 7D | X | 20-22 | 24/24 | WOH/24* | | 20.0 Stiff, gray, silty CLAY | | |
| | 25 | | 1V 8D | X | 25-25 25.1-27.1 | 0 24/22 | WOH-1-1-1 | | 25.0 Stiff, gray, silty CLAY with frequent silty sand and clayey silt seams and layers No Vane Shear Penetration @ 1V | | |
| | 30 | | 9D | X | 30-32 | 24/20 | 6-6-10-13 | | 30.0 Medium dense, brown, SAND, trace silt, with occasional clayey silt seams | | |
| | 35 | | 10D | X | 35-37 | 24/16 | 7-9-9-10 | | 35.0 Medium dense, brown, SAND, trace silt, trace fine gravel | | |



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BORING / WELL 13-0912.4.GPJ SWCE TEMPLATE.GDT 9/21/17

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: B-17-04



BORING LOG

BORING NO.: B-17-04
SHEET: 2 of 2
PROJECT NO.: 13-0912.4
DATE START: 9/13/2017
DATE FINISH: 9/13/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|-----------------|-------------------|-------------|-------------------------------------|---|---------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | | | | |
| | | | 11D | X | 40-42 | 24/16 | 10-13-13-13 | | 40.0 | Medium dense, rust-brown, SAND, some silt | |

42.0 Bottom of Exploration at 42.0 feet



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BORING / WELL: 13-0912.4.GPJ SWCE TEMPLATE.GDT 9/21/17

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BORING NO.: B-17-04



BORING LOG

BORING NO.: B-17-05
SHEET: 1 of 1
PROJECT NO.: 13-0912.4
DATE START: 9/12/2017
DATE FINISH: 9/12/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** +/- **TOTAL DEPTH (FT):** 32.0 **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Jeff Lee **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 **AUGER ID/OD:** N/A / N/A **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** 4 in / 4 1/2 in **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ∇ 7 ft Soils Moist Below 5', Saturated Below 7' +/-

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
 Water Level ∇ At time of Drilling
 ∇ At Completion of Drilling
 ∇ After Drilling
 D = Split Spoon Sample
 U = Thin Walled Tube Sample
 R = Rock Core Sample
 V = Field Vane Shear
 Pen. = Penetration Length
 Rec. = Recovery Length
 bpf = Blows per Foot
 mpf = Minute per Foot
 WOR = Weight of Rods
 WOH = Weight of Hammer
 RQD = Rock Quality Designation
 PID = Photoionization Detector
 S_v = Field Vane Shear Strength, kips/sq.ft.
 q_u = Unconfined Compressive Strength, kips/sq.ft.
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| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|-----------------|-------------|-------------------------------------|------------------------|--|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | | | | |
| | | | 1D | | 0-2 | 24/16 | 10-10-12-11 | | | |
| | | | 2D | | 2-4 | 24/18 | 15-9-3-3 | | | |
| | 5 | | 3D | | 5-7 | 24/14 | 3-3-2-1 | | | |
| | 10 | | 4D | | 10-12 | 24/14 | 3-3-2-1 | | 8.0 | Loose, brown, gravelly SAND, some silt (Fill) |
| | 15 | | 5D | | 15-17 | 24/20 | WOH/24* | | 11.5 | Very loose, dark gray and black, SAND and SILT, with organics |
| | 20 | | 6D | | 20-22 | 24/1 | WOH/24* | | 15.0 | Very loose, gray, sandy SILT, some clay, with shells and organic fibers |
| | 25 | | 7D | | 25-27 | 24/20 | 3-3-6-12 | | 24.0 | Loose, gray and brown, layered silty CLAY, sandy SILT, and silty fine SAND |
| | 30 | | 8D | | 30-32 | 24/20 | 10-10-8-9 | | 26.5 | Medium dense, brown, fine SAND, some silt |
| | | | | | | | | | 31.0 | Medium dense, gray-brown, clayey sandy SILT |
| | | | | | | | | | 32.0 | Bottom of Exploration at 32.0 feet |



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Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-17-05

BORING / WELL 13-0912.4.GPJ SWICE TEMPLATE.GDT 9/21/17



BORING LOG

BORING NO.: B-17-06
SHEET: 1 of 1
PROJECT NO.: 13-0912.4
DATE START: 9/12/2017
DATE FINISH: 9/12/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** +/- **TOTAL DEPTH (FT):** 32.0 **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Jeff Lee **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 **AUGER ID/OD:** N/A / N/A **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** 4 in / 4 1/2 in **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ∇ 10 ft Soils Moist Below 5', Saturated Below 10' +/-

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
 ∇ Water Level
 ∇ At time of Drilling
 ∇ At Completion of Drilling
 ∇ After Drilling
D = Split Spoon Sample Pen. = Penetration Length
U = Thin Walled Tube Sample Rec. = Recovery Length
R = Rock Core Sample bpf = Blows per Foot
V = Field Vane Shear mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|-----------------|-------------------|-------------|-------------------------------------|------------------------------------|--|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | | | | |
| | | | 1D | X | 0-2 | 24/20 | 3-4-4-5 | | 0.5 | | Loose, black, ASH and slag, trace organics (Fill) |
| | | | 2D | X | 2-4 | 24/14 | 5-4-4-4 | | | | Loose, brown, silty fine SAND with occasional silty clay layers (Fill) |
| | 5 | | 3D | X | 5-7 | 24/22 | 2-2-2-2 | | | | |
| | 10 | | 4D | X | 10-12 | 24/16 | 3-7-9-8 | | 10.0 | ∇ | Medium dense, brown, SAND, some silt |
| | 15 | | 5D | X | 15-17 | 24/18 | 8-18-22-24 | | 15.0 | | Dense, gray, silty SAND, trace gravel |
| | 20 | | 6D | X | 20-22 | 24/18 | 5-6-7-8 | | 20.0 | | Medium dense, brown, SAND, trace silt, with occasional silt layers |
| | 25 | | 7D | X | 25-27 | 24/16 | 8-8-8-10 | | | | |
| | 30 | | 8D | X | 30-32 | 24/16 | 8-8-8-10 | | | | |
| | | | | | | | | | 32.0 | Bottom of Exploration at 32.0 feet | |



Reviewed for Code Compliance
 Permitting and Inspections Department
 Approved with Conditions
 02/21/2019

BORING / WELL 13-0912.4.GPJ SWICE TEMPLATE.GDT 9/21/17

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-17-06



BORING LOG

BORING NO.: B-17-07
SHEET: 1 of 2
PROJECT NO.: 13-0912.4
DATE START: 9/13/2017
DATE FINISH: 9/14/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** +/- **TOTAL DEPTH (FT):** 52.0 **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Jeff Lee **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 **AUGER ID/OD:** N/A / N/A **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** 4 in / 4 1/2 in **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ∇ 10 ft Soils Saturated Below 10' +/-

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
 Water Level: ∇ At time of Drilling, ∇ At Completion of Drilling, ∇ After Drilling
 D = Split Spoon Sample, U = Thin Walled Tube Sample, R = Rock Core Sample, V = Field Vane Shear
 Pen. = Penetration Length, Rec. = Recovery Length, bpf = Blows per Foot, mpf = Minute per Foot
 WOR = Weight of Rods, WOH = Weight of Hammer, RQD = Rock Quality Designation, PID = Photoionization Detector
 S_v = Field Vane Shear Strength, kips/sq.ft., q_u = Unconfined Compressive Strength, kips/sq.ft., N/A = Not Applicable

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|-----------------|-------------------|-------------------------|---|------------------------|---------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | | | | |
| | | | 1D | X | 0-2 | 24/15 | 4-4-7-11 | | Loose to medium dense, black, ASH and brick (Fill) | | |
| | 5 | | 2D | X | 5-7 | 24/16 | 2-4-4-3 | | 4.0 Loose, light brown, SAND, trace silt, trace fine gravel | | |
| | 10 | | 3D | X | 10-12 | 24/16 | 2-2-4-4 | | 10.0 Loose, gray-brown SAND, some silt, some gravel | ∇ | |
| | 15 | | 4D | X | 15-17 | 24/20 | 2-3-4-6 | q _p =5 ksf | 15.0 Loose, gray, clayey sandy SILT | | |
| | | | | | | | | | 16.0 Stiff, brown-gray, silty CLAY | | |
| | 20 | | 5D | X | 20-22 | 24/24 | 1-1-3-2 | q _p =1.5 ksf | 22.0 Medium, gray, silty CLAY | | |
| | 25 | | 6D | X | 25-27 | 24/24 | WOH/18"-1 | | 27.0 Medium, gray, silty CLAY layered with silty sand and clayey silt | | |
| | 30 | | 7D | X | 30-32 | 24/24 | WOH/12"-1-3 | | 31.5 Medium dense, brown, silty fine SAND | | |
| | 35 | | 8D | X | 35-37 | 24/20 | 7-8-7-12 | q _p =1.5 ksf | 36.0 Medium dense, gray-brown clayey SILT, some fine sand | | |
| | | | | | | | | | 37.0 Medium dense, brown, medium to coarse SAND, trace silt | | |



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BORING / WELL 13-0912.4.GPJ SWCE TEMPLATE.GDT 9/21/17

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(Continued Next Page)

BORING NO.: B-17-07



BORING LOG

BORING NO.: B-17-07
SHEET: 2 of 2
PROJECT NO.: 13-0912.4
DATE START: 9/13/2017
DATE FINISH: 9/14/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|-----------------|-------------------|-------------|---|------------------------|---------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | | | | |
| | | | 9D | X | 40-42 | 24/16 | 7-8-9-12 | | | | |
| | 45 | | 10D | X | 45-47 | 24/5 | 2-2-6-4 | 45.0 | Loose, gray, silty SAND, trace gravel | | |
| | 50 | | 11D | X | 50-52 | 24/20 | 10-9-10-9 | 50.0 | Medium dense, gray, gravelly silty SAND | | |

52.0 Bottom of Exploration at 52.0 feet



Reviewed for Code Compliance
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02/21/2019

BORING / WELL: 13-0912.4.GPJ SWICE TEMPLATE.GDT 9/21/17

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-17-07



BORING LOG

BORING NO.: B-17-08
SHEET: 1 of 1
PROJECT NO.: 13-0912.4
DATE START: 9/15/2017
DATE FINISH: 9/15/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** +/- **TOTAL DEPTH (FT):** 32.0 **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Jeff Lee **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 **AUGER ID/OD:** N/A / N/A **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** 4 in / 4 1/2 in **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ∇ 10 ft Soils Saturated Below 10'

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
 ∇ Water Level
 ∇ At time of Drilling
 ∇ At Completion of Drilling
 ∇ After Drilling
D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear
Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks | |
|------------|------------|-------------------|--------------------|------|------------|-----------------|---------------|-------------------------------------|---|----------|-------------------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | | | | | Blow Count or RQD |
| | | | 1D | X | 0-2 | 24/3 | 3-5-5-5 | | | | |
| | | | 2D | X | 2-4 | 24/16 | 4-7-4-4 | 2.0 | Medium dense, brown, SAND, some silt, with silt seams | | |
| | 5 | | 3D | X | 5-7 | 24/14 | 2-2-3-3 | 5.0 | Loose, brown, SAND, trace silt, trace gravel | | |
| | 10 | | 4D | X | 10-12 | 24/16 | 2-2-9-10 | 10.0 | Loose to medium dense, gray-brown, silty SAND, some gravel, with organic fibers | ∇ | |
| | 15 | | 5D | X | 15-17 | 24/24 | 3- WOH/18" | 15.0 | Loose, brown, silty fine SAND | | |
| | | | | | | | | 16.0 | Medium, gray, silty CLAY | | |
| | 25 | | 6D | X | 25-27 | 24/16 | 11-20-18-16 | 25.0 | Dense, rust-brown, fine SAND, some silt | | |
| | 30 | | 7D | X | 30-32 | 24/15 | 12-11-11-13 | 30.0 | Medium dense, brown, SAND, trace silt, trace gravel | | |
| | | | | | | | | 32.0 | Bottom of Exploration at 32.0 feet | | |



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BORING / WELL 13-0912.4.GPJ SWICE TEMPLATE.GDT 9/21/17

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BORING NO.: B-17-08



BORING LOG

BORING NO.: B-17-09
SHEET: 1 of 2
PROJECT NO.: 13-0912.4
DATE START: 9/15/2017
DATE FINISH: 9/15/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** +/- **TOTAL DEPTH (FT):** 50.0 **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Jeff Lee **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 **AUGER ID/OD:** N/A / N/A **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** 4 in / 4 1/2 in **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ∇ 10 ft Soils Wet Below 5', Saturated Below 10' +/-

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level
 ∇ At time of Drilling
 ∇ At Completion of Drilling
 ∇ After Drilling
D = Split Spoon Sample Pen. = Penetration Length
U = Thin Walled Tube Sample Rec. = Recovery Length
R = Rock Core Sample bpf = Blows per Foot
V = Field Vane Shear mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer S_v = Field Vane Shear Strength, kips/sq.ft.
RQD = Rock Quality Designation q_u = Unconfined Compressive Strength, kips/sq.ft.
PID = Photoionization Detector N/A = Not Applicable

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|-----------------|-------------------|-------------|--|------------------------|---------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | | | | |
| | | | 1D | X | 0-2 | 24/16 | 4-5-5-7 | | Medium dense to loose, black, ASH and brick (Fill) | | |
| | | | 2D | X | 2-4 | 24/12 | 2-2-2-3 | | | | |
| | 5 | | 3D | X | 5-7 | 24/20 | 2-2-2-3 | | 5.0 Loose, brown, SAND, some silt, with frequent silt seams | | |
| | 10 | | 4D | X | 10-12 | 24/8 | 4-5-7-13 | | 10.0 Medium dense, brown, silty gravelly SAND | ∇ | |
| | 15 | | 5D | X | 15-17 | 24/14 | 5-5-5-3 | | 15.0 Loose, brown, SILT and fine SAND | | |
| | 20 | | 6D | X | 20-22 | 24/24 | WOH/12"-1-3 | | 20.0 Medium, gray, silty CLAY with frequent sand seams and layers | | |
| | 25 | | 7D | X | 25-27 | 24/24 | WOH/12"-1-2 | | | | |
| | 30 | | 8D | X | 30-32 | 24/24 | WOR- WOH/18" | | Hydraulic Push Rod Probe Below 32' | | |
| | 35 | | | | | | | | 36.0 Hydraulic Push Refusal @ 36' - Probable Granular Soils Drive Rod Probe with 140 lb. Hammer 36' - 37' : 45 Blows 37' - 38' : 48 Blows | | |



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(Continued Next Page)

BORING NO.: B-17-09

BORING / WELL 13-0912.4.GPJ SWICE TEMPLATE.GDT 9/21/17



BORING LOG

BORING NO.: B-17-09
SHEET: 2 of 2
PROJECT NO.: 13-0912.4
DATE START: 9/15/2017
DATE FINISH: 9/15/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|-----------------|-------------------|-----------------------|--|-------------------------------------|------------------------------------|---------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | Field / Lab Test Data | | | | |
| | 45 | | | | | | | | 38' - 39' : 38 Blows 39' - 40' : 30 Blows 40' - 41' : 31 Blows 41' - 42' : 39 Blows 42' - 43' : 34 Blows 43' - 44' : 23 Blows 44' - 45' : 19 Blows 45' - 46' : 21 Blows 46' - 47' : 23 Blows 47' - 48' : 25 Blows 48' : 49' : 29 Blows 49' - 50' : 27 Blows | | | |
| | 50 | | | | | | | | 50.0 | | Bottom of Exploration at 50.0 feet | |



Reviewed for Code Compliance
 Permitting and Inspections Department
 Approved with Conditions
02/21/2019

BORING / WELL: 13-0912.4.GPJ SWICE TEMPLATE.GDT 9/21/17

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BORING NO.: B-17-09



BORING LOG

BORING NO.: B-17-10
SHEET: 1 of 2
PROJECT NO.: 13-0912.4
DATE START: 9/14/2017
DATE FINISH: 9/14/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** +/- **TOTAL DEPTH (FT):** 52.0 **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Jeff Lee **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 **AUGER ID/OD:** N/A / N/A **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** 4 in / 4 1/2 in **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: 0.81 **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ∇ 10 ft Soils Saturated Below 10' +/-

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level
 ∇ At time of Drilling
 ∇ At Completion of Drilling
 ∇ After Drilling
D = Split Spoon Sample Pen. = Penetration Length
U = Thin Walled Tube Sample Rec. = Recovery Length
R = Rock Core Sample bpf = Blows per Foot
V = Field Vane Shear mpf = Minute per Foot
WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
N/A = Not Applicable

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|--------------------|-----------------|-------------------|-------------|-------------------------------------|---|----------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | | | | |
| | | | 1D | X | 0-2 | 24/6 | 4-7-7-7 | | 0.3 | Crushed Stone Surface (Fill) | |
| | | | 2D | X | 2-4 | 24/4 | 10-6-6-7 | | 2.0 | Medium dense, black, ASH, some silty sand and gravel (Fill) | |
| | 5 | | 3D | X | 5-7 | 24/16 | 2-3-3-4 | | 5.0 | Medium dense, brown, gravelly silty SAND with ash (Fill) | |
| | | | | | | | | | | Loose, brown, SAND, some silt | |
| | 10 | | 4D | X | 10-12 | 24/14 | 2-2-2-3 | | 10.0 | Loose, gray-brown silty SAND, some gravel | ∇ |
| | | | | | | | | | 11.8 | Loose, gray, silty SAND, some gravel, with occasional silt seams and organic odor | |
| | 15 | | 5D | X | 15-17 | 24/16 | 4-4-6-5 | | | | |
| | | | | | | | | | | | |
| | 20 | | 6D | X | 20-22 | 24/20 | 1-1/12"-1 | | 20.0 | Stiff, gray with black streaking, silty CLAY, with frequent sand seams and layers | |
| | | | | | | | | | | | |
| | 25 | | 1V 7D | X | 25-25 25.1-27.1 | 0 24/12 | 1-1-1-1 | | | No Vane Shear Penetration @ 1V | |
| | | | | | | | | | | | |
| | 30 | | 8D | X | 30-32 | 24/22 | WOR-WOM-WOH/12" | | | | |
| | | | | | | | | | | | |
| | 35 | | 9D | X | 35-37 | 24/22 | WOH/12"-1-2 | | | | |



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(Continued Next Page)

BORING NO.: B-17-10

BORING / WELL 13-0912.4.GPJ SWCE TEMPLATE.GDT 9/21/17



BORING LOG

BORING NO.: B-17-10
SHEET: 2 of 2
PROJECT NO.: 13-0912.4
DATE START: 9/14/2017
DATE FINISH: 9/14/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|-----------------|-------------------|-------------------------|-------------------------------------|------------------------|---|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | | | | |
| | 45 | | 2V | □ | 40-40.8 | 10 | | | | | No Vane Shear Rotation @ 2V |
| | 50 | | 10D | ⊗ | 50-52 | 24/18 | 11-13-17-31 | S _v >=1.2ksf | | | 49.0 Medium dense to dense, brown and rust-brown, layered fine SAND, some silt and silty SAND |

52.0 Bottom of Exploration at 52.0 feet



Reviewed for Code Compliance
 Permitting and Inspections Department
 Approved with Conditions
02/21/2019

BORING / WELL 13-0912.4.GPJ SWICE TEMPLATE.GDT 9/21/17

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BORING NO.: B-17-10



BORING LOG

BORING NO.: B-17-11
SHEET: 1 of 2
PROJECT NO.: 13-0912.4
DATE START: 9/14/2017
DATE FINISH: 9/15/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** _____ **TOTAL DEPTH (FT):** 72.0 **LOGGED BY:** Evan Walker
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Jeff Lee **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted CME 850 **AUGER ID/OD:** N/A / N/A **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** 4 in / 4 1/2 in **CORE BARREL:** _____
HAMMER EFFICIENCY FACTOR: 0.81 **HAMMER DROP (inch):** 30 / 30
WATER LEVEL DEPTHS (ft): ∇ 6 ft Soils Saturated Below 6' +/-

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level
 ∇ At time of Drilling
 ∇ At Completion of Drilling
 ∇ After Drilling
 D = Split Spoon Sample
 U = Thin Walled Tube Sample
 R = Rock Core Sample
 V = Field Vane Shear
 Pen. = Penetration Length
 Rec. = Recovery Length
 bpf = Blows per Foot
 mpf = Minute per Foot
 WOR = Weight of Rods
 WOH = Weight of Hammer
 RQD = Rock Quality Designation
 PID = Photoionization Detector
 S_v = Field Vane Shear Strength, kips/sq.ft.
 q_u = Unconfined Compressive Strength, kips/sq.ft.
 N/A = Not Applicable

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|-----------------|-------------------|-------------|--|------------------------|---------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | | | | |
| | | | 1D | | 0-2 | 24/16 | 5-5-5-5 | | Medium dense, black, ASH with brick and some silty sand (Fill) | | |
| | | | 2D | | 2-4 | 24/18 | 6-6-8-9 | 2.5 | Medium dense, brown, SAND, some silt, with silt layers | | |
| | 5 | | 3D | | 5-7 | 24/18 | 2-2-2-1 | 5.0 | Loose, brown to gray, silty SAND with frequent silty clay and clayey silt seams and layers | ∇ | |
| | 10 | | 4D | | 10-12 | 24/20 | 1/12"-1/12" | | | | |
| | 15 | | 5D | | 15-17 | 24/16 | WOH-3-4-4 | 15.0 | Very Loose, dark brown PEAT | | |
| | | | | | | | | 16.0 | Loose, dark brown, SAND, some silt, with organic fibers | | |
| | 20 | | 6D | | 20-22 | 24/14 | 7-8-9-8 | 20.0 | Medium dense, gray-brown, gravelly SAND, some silt | | |
| | 25 | | 7D | | 25-27 | 24/20 | 3-2-2-1 | 25.0 | Loose, gray, silty fine SAND with frequent silty clay layers | | |
| | 30 | | 8D | | 30-32 | 24/24 | WOH/24" | 30.0 | Medium, gray, silty CLAY with frequent sand seams and layers | | |
| | 35 | | 9D | | 35-37 | 24/22 | WOH-1-2-2 | | | | |



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 02/21/2019

BORING / WELL 13-0912.4.GPJ SWCE TEMPLATE.GDT 9/21/17

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING NO.: B-17-11



BORING LOG

BORING NO.: B-17-11
SHEET: 2 of 2
PROJECT NO.: 13-0912.4
DATE START: 9/14/2017
DATE FINISH: 9/15/2017

CLIENT: Canal Landing, LLC
PROJECT: Proposed Portland Yacht Services Expansion
LOCATION: West Commercial Street, Portland, Maine

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|----------|----------------------|-----------------|---------------------|--|------------------------|---------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | | | | |
| | | | 1V 1V' | [Symbol] | 40-40.8 40.8-41.6 | 10 10 | | S _v =0.74/0.18ksf S _v =0.87/0.24ksf | | |
| | 45 | | 2V 2V' | [Symbol] | 45-45.8 45.8-46.6 | 10 10 | | S _v =0.84/0.24ksf S _v =0.93/0.21ksf | | |
| | 50 | | 10D | [Symbol] | 50-52 | 24/24 | WOR- WOH- 2-2 | | | |
| | 66.0 | | | | | | | Medium dense, gray, gravelly SILT and SAND | | |
| | 70 | | 11D | [Symbol] | 70-72 | 24/22 | 11-11- 10-12 | | | |



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72.0 Bottom of Exploration at 72.0 feet

BORING / WELL: 13-0912.4.GPJ SWICE TEMPLATE.GDT 9/21/17

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-17-11



KEY TO THE NOTES & SYMBOLS
Test Boring and Test Pit Explorations

All stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

- w - water content, percent (dry weight basis)
- q_u - unconfined compressive strength, kips/sq. ft. - laboratory test
- S_v - field vane shear strength, kips/sq. ft.
- L_v - lab vane shear strength, kips/sq. ft.
- q_p - unconfined compressive strength, kips/sq. ft. – pocket penetrometer test
- O - organic content, percent (dry weight basis)
- W_L - liquid limit - Atterberg test
- W_P - plastic limit - Atterberg test
- WOH - advance by weight of hammer
- WOM - advance by weight of man
- WOR - advance by weight of rods
- HYD - advance by force of hydraulic piston on drill
- RQD - Rock Quality Designator - an index of the quality of a rock mass.
- γ_T - total soil weight
- γ_B - buoyant soil weight



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Description of Proportions:

- Trace: 0 to 5%
- Some: 5 to 12%
- “Y” 12 to 35%
- And 35+%

Description of Stratified Soils

- Parting: 0 to 1/16” thickness
- Seam: 1/16” to 1/2” thickness
- Layer: 1/2” to 12” thickness
- Varved: Alternating seams or layers
- Occasional: one or less per foot of thickness
- Frequent: more than one per foot of thickness

REFUSAL: Test Boring Explorations - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: Test Pit Explorations - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.